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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,173	02/06/2006	Karsten Ruth	Umicore 0143-US	4535
80336	7590	01/21/2011		
Levin Santalone LLP 2 East Avenue Suite 201 Larchmont, NY 10538			EXAMINER THOMAS, BRENT C	
			ART UNIT 1726	PAPER NUMBER
			MAIL DATE 01/21/2011	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/541,173	<b>Applicant(s)</b> RUTH ET AL.	
	<b>Examiner</b> BRENT THOMAS	<b>Art Unit</b> 1726	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-9 and 17-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-9 and 17-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 11/12/10 have been fully considered but they are not persuasive. With regard to the argument that amended claim 1 is patentably distinct from the combination of Hitomi and Xie, the amendments to claim 1 render claim 1 a product by process claim. While the process of manufacturing the gas diffusion layer of the claimed invention may be different than the process that would be present in the combination of Hitomi and Xie, a clear structural difference or change in properties due to the process needs to be shown in order to distinguish the claims over the prior art. Page 3 lines 24-28 of the specification appears to only compare the gas diffusion layer of the instant application to gas diffusion layers with catalyst layers applied to them and does not point out any clear advantages over a gas diffusion layer with catalyst particles dispersed throughout such as the one taught by Xie.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 3-9, 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitomi et al (US 2002/0019308 A1) in view of Xie et al (US 6,541,150 B1).

5. For purposes of examination claims 1, 20, and 21 are considered product by process claims.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is

unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

"The Patent Office bears a lesser burden of proof in making out a case of *prima facie* obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983)

With regard to claims 1, 20, and 21, Hitomi teaches an electrode for a fuel cell comprising a porous substrate material with catalyst particles distributed over the surface [0001, 0075, 0076] by techniques such as screen printing and spraying (which would distribute the coating evenly) [0075]. Hitomi further teaches that the porous support material acts as a gas diffusion layer [0076].

Hitomi does not explicitly teach a uniform distribution over the entire volume of the gas diffusion layer. However, in the same field of endeavor, Xie teaches a gas diffusion layer impregnated with a catalyst (col. 3 lines 11-12, fig. 2b), which would feature a uniform volume distribution. It would have been obvious to one of ordinary skill in the art to integrate the catalyst layer of Hitomi into the gas diffusion layer as

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taught by Xie for the benefit of improving gas permeability and electrical conductivity (Xie col. 3 lines 13-17).

The combination of Hitomi and Xie does not teach the claimed method of making the gas diffusion layer, but does teach a gas diffusion layer with a substantially similar structure to the claimed invention with catalyst particles dispersed uniformly over the volume of the gas diffusion layer (Xie col. 3 lines 11-12, fig. 2b).

6. With regard to claim 3, Hitomi teaches an average platinum (catalyst) particle size of 2.4 nm, which falls within the claimed range [0079].
7. With regard to claim 4, Hitomi teaches Pt, Pd, Ru, Rh, and Ir as catalysts [0056].
8. With regard to claim 5, Hitomi teaches a concentration per unit area of 1 mg/cm<sup>2</sup>, which falls within the claimed range [0079].
9. With regard to claim 6, Hitomi teaches carbon paper as a porous substrate material [0075].
10. With regard to claims 7-9, claims 7-9 are drawn to intended use of the catalyst containing layer. Since the catalyst containing layer of Hitomi is substantially similar to the layer of the instant application, as shown in the rejections of claims 1-6 above, it should inherently be compatible with the same applications. See MPEP 2111.02 II.
11. With regard to claim 17-19, Hitomi teaches the application of the catalyst containing layer as part of an electrode in a fuel cell [0001, 0075]. The application of the fuel cell is intended use. Since the catalyst containing layer of Hitomi is substantially similar to the layer of the instant application, as shown in the rejections of

claims 1-6 above, it should inherently be compatible with the same applications. See MPEP 2111.02 II.

### ***Conclusion***

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRENT THOMAS whose telephone number is (571)270-7737. The examiner can normally be reached on (FLEX schedule) Monday - Thursday 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BT

/Patrick Joseph Ryan/  
Supervisory Patent Examiner, Art Unit 1726